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SOME INTERESTING GEOGRAPHICAL PROBLEMS IN THE EXPLORATION OF NORTHERN CANADA

By CHARLES CAMSELL

Geological Survey of Canada

Of the habitable portion of the globe northern Canada contains a very large area of imperfectly known or wholly unexplored territory, and in this are many fascinating problems requiring solution by the adventurous wanderer in the silent places of the earth. Because this territory is all more or less habitable, and its exploration not unlikely to be rewarded by discoveries of mineral resources of great value, it is incumbent on Canadians in particular to make some effort to dispel the darkness of ignorance and fill up some of the blank spaces that appear on the map of northern Canada. The field is wide, the problems numerous, the work exceedingly fascinating, and the results always worth the effort.

In a recent paper¹ the writer attempted to show what geographical work yet remains to be done, and the necessity for doing it, and estimated that, out of a total area of continental Canada of about 3,209,000 square miles, about 900,000 square miles must still be considered as unexplored. This unexplored area is contained in some thirty blocks ranging from 5,000 to over 70,000 square miles in extent and occupying much of the Labrador peninsula and the North West Territories.

Up to the end of the nineteenth century the Geological Survey of Canada had been very active in carrying on exploratory work, and after a period of several years quiescence an exploration program was again arranged only to be interrupted by the outbreak of the war in 1914. In that year part of the work of the Geological Survey consisted in the exploration by the writer² of about 350 miles of a hitherto unknown river, the Taltson, flowing into Great Slave Lake and draining a great part of the country east of the Slave River.

In 1915 F. J. Alcock³ mapped the lower part of Churchill River and in 1916 A. E. Cameron⁴ solved an interesting geographical problem by delineating the northern shore line of the western arm of Great Slave Lake. This shore line was marked on the map of Canada in broken lines and though traversed by Alexander Mackenzie⁵ in his voyage of discovery down

¹ Charles Camsell: The Unexplored Areas of Continental Canada, *Geogr. Journ.*, Vol. 48, 1916, pp. 249-257. [Abstracted below, under "Geographical Record."]

² Charles Camsell: An Exploration of the Region between Athabaska and Great Slave Lakes, *Summary Rept. Geol. Survey of Canada for 1914*, pp. 55-60.

Idem: An Exploration of the Tazin and Taltson Rivers, North West Territories, *Geol. Survey of Canada Memoir 84*, Ottawa, 1916.

³ F. J. Alcock: Lower Churchill River Region, Manitoba, *Summary Rept. Geol. Survey of Canada for 1915*, pp. 135-136. See also *idem*: The Churchill River, *Geogr. Rev.*, Vol. 2, 1916, pp. 433-448.

⁴ A. E. Cameron: Reconnaissance on Great Slave Lake, *Summary Rept. Geol. Survey of Canada for 1916*, pp. 66-76.

⁵ Alexander Mackenzie: Voyages from Montreal on the River St. Laurence through the Continent of North America to the Frozen and Pacific Oceans in the Years 1789 and 1793, London, 1801, pp. 7-22.

the Mackenzie River in 1789 and by the voyageurs of the Hudson's Bay Company en route from the Mackenzie to Fort Rae, had never been even approximately outlined. Mr. Cameron's survey places the shore line some distance farther north than the supposed location and cuts off much of the big point that separates the west arm from the north arm, enlarging the area of the lake by about 2,400 square miles.

GREAT SLAVE LAKE

The complete delineation of the shore line of Great Slave Lake is one of the most obvious geographical problems demanding solution in this region. The lake is said to have a superficial area of about 13,000 square miles and a total length of nearly 300 miles. Up to the present time the western arm is the only portion that has been fairly accurately outlined, this having been done by W. Ogilvie in 1888⁶ and A. E. Cameron in 1916. The north arm still requires some surveying before its shores may be said to be fairly well mapped, and this will be no simple undertaking because of the thousands of rocky islands that border its eastern shore. The shore line of this arm as it appears on the maps of Canada is the work partly of one of the Franklin expeditions⁷ and partly of J. M. Bell⁸ of the Geological Survey. The eastern arm of the lake has been partly mapped by a number of explorers from the time of Captain Back⁹ in 1833 down to the expeditions of J. W. Tyrrell¹⁰ in 1900 and E. T. Seton¹¹ in 1907; but since most of these travelers followed the same direct route to the east end of the lake much of the shore line, particularly on the south side where it is indented by deep bays, has never been mapped or described.

CARIBOU PLATEAU

Another problem of deep interest, not only to the geographer but to the geologist and physiographer as well, is presented by the large blank space on the map immediately north of the Peace River between Hay River and the 114th meridian of longitude. Approximately 10,000 square miles of this blank space is occupied by a high plateau, locally known as Caribou Mountain, standing nearly 2,500 feet above the general level of the country

⁶ William Ogilvie: *Exploratory Survey of Part of the Lewes, Tat-on-due, Porcupine, Bell, Trout, Peel, and Mackenzie Rivers, 1887-88, Part 8 of the Annual Rept. Dept. of the Interior for 1889*, Ottawa, 1890.

⁷ John Franklin: *Narrative of a Journey to the Shores of the Polar Sea in the Years 1819, 20, 21, and 22, London, 1823*; see pp. 198-201 and section of three-sheet detailed map embracing the part of the route comprised between Isle à la Crosse and Fort Providence.

⁸ J. M. Bell: *Report on the Topography and Geology of Great Bear Lake and of a Chain of Lakes and Streams Thence to Great Slave Lake, Report C of Annual Rept. Geol. Survey of Canada, Vol. 12 for 1899*, Ottawa, 1902.

⁹ [George] Back: *Narrative of the Arctic Land Expedition to the Mouth of the Great Fish River and Along the Shores of the Arctic Ocean in the Years 1833, 1834, and 1835, London, 1836*; see Chapter 3 and the accompanying map.

¹⁰ J. W. Tyrrell: *Exploratory Survey between Great Slave Lake and Hudson Bay, Appendix No. 26 to Part III of Annual Rept. Dept. of the Interior for 1900-1901*, Ottawa, 1901; see pp. 108-110 and Sheet No. 1 of 22-sheet map accompanying report in pocket.

¹¹ E. T. Seton: *The Arctic Prairies: A Canoe-Journey of 2,000 Miles in Search of the Caribou, Being the Account of a Voyage to the Region North of Aylmer Lake, New York, 1911*; see maps on pp. 180-181.

to the east and north of it, and about 2,000 feet above the country to the south and west. With the exception of Sergeant R. W. Macleod¹² of the Royal North West Mounted Police, no white man to my knowledge has ever crossed the plateau, although it is easily accessible and plainly visible, 20 to 30 miles distant, to the traveler on the Peace River from almost any point between Fort Vermilion and Peace Point. This is very strange when we consider that the Peace River has been used as one of the main highways of the north country for nearly 130 years. In 1914 J. R. Akins¹³ of the Dominion Topographical Surveys surveyed the 29th base line across the southern face of the plateau, reaching an elevation of 3,207 feet above the sea on that line. On the west travelers have not been nearer the plateau than the Hay River; and on the east the writer¹⁴ in 1902 made a reconnaissance trip along the base of the plateau following the Little Buffalo and Jackfish Rivers by canoe. On the north the plateau is not visible from the shore of Great Slave Lake but was seen by A. H. Mellor¹⁵ of the Royal Northwest Mounted Police when he ascended Buffalo River to Buffalo Lake in 1910 and by A. E. Tameron of the Geological Survey in 1917.

The slope up to the top of the plateau from the south is gentle but on the east and north is fairly steep. The crest line from all points of view is even and unbroken by any sharp peaks. Sergeant Macleod describes the top as rolling, dotted with lakes of all sizes, and covered by a stunted growth of spruce about 10 feet high. Macleod's traverse across the plateau was made with dog teams in December and January when snow lay deep on the ground and he was, therefore, unable to determine what the soil or bedrock was. The surface, however, he says is heavily moss-covered. He speaks of crossing a large lake about the size of Lesser Slave Lake, i. e. about 60 miles long, and lying near the southern edge of the plateau. This lake is still unmapped. This and the other lakes are said to be stocked with whitefish, and caribou roam all over the plateau. The plateau is quite uninhabited and is only visited for a short period of the year by Indians who go in the autumn to the large lake mentioned by Macleod for the purpose of fishing. The reason for this is that in winter it is a most inhospitable region because of its lack of timber, and in summer the mosquitoes and flies are said to be worse than in any other part of the north country.

Stray prospectors have been attracted to it by the report that a placer miner had found gold on one of the streams flowing out of the mountain. Partly to investigate this story and partly to do some general prospecting two well-known British Columbia prospectors traveled into the borders of the country by way of the Jackfish River in the summer of 1915. On the writer's way up the Peace River in September, 1916, he made inquiries for

¹² Appendix U, *Rept. Royal Northwest Mounted Police for 1911*, pp. 180-181.

¹³ *Annual Rept. of the Topogr. Surveys Branch for 1914-15*, Dept. of the Interior, Ottawa, 1916, pp. 67-68; on accompanying sheet is a small map showing type of soils and forest covering and a profile.

¹⁴ Charles Camsell: *The Region South-west of Fort Smith, Slave River, Summary Rept. Geol. Survey of Canada for 1902* (= Report A of Annual Report, Vol. 15 for 1902-3), pp. 151 A-169 A.

¹⁵ Appendix T, *Rept. Royal Northwest Mounted Police for 1910*, pp. 197-200.

these men but failed to get any news of them other than that they had been seen by Indians near the head of the Jackfish River in the autumn of 1915 and that their supplies of food were low and one of them was ill. What their fate has been he could not learn. The unknown had for them the same strange and compelling fascination that draws so many prospectors and explorers into the most remote and forbidding corners of the earth. These men apparently failed, and the problem of the Caribou Plateau is still unsolved. It is inconceivable, however, that the plateau will remain unexplored much longer as it has become easily accessible since the railway reached the Peace River at Peace River Crossing in 1915. It is clearly visible from Fort Vermilion—a point which can be reached in three days from Edmonton by rail and steamboat, but how to cross the plateau in summer may require careful planning.

Among the questions that require answering by the explorer of the Caribou Plateau are: What is the area of the plateau and what the geography of its surface? What is its origin and why should it stand out in the central plain of the Mackenzie basin, like a great monadnock, rising some 2,000 feet above it and separated by a hundred miles from the Laurentian Plateau on the east and by several hundreds of miles from the Cordillera on the west? Is it a horst of the Laurentian Plateau built out of granites or gneisses, or, as is more likely, is it composed of younger—perhaps Cretaceous—rocks, an erosion remnant like Birch Mountain or the Buffalo Head Hills to the south of it?

HEADWATERS OF THELON AND TALTSON RIVERS

Immediately north of Lake Athabaska, between the Doobaunt and Taltson Rivers and extending down the Thelon River, is another large block of unexplored territory, 47,000 square miles in extent, which up to the present has only been traversed—so far as known—by one white man. Samuel Hearne¹⁶ crossed this block of territory from south to north in 1771 on his way to the Coppermine River, and again on his return in 1772 he traversed it from west to east. For one hundred and forty-five years no one has attempted to verify Hearne's evidently inaccurate geographical results or to map the other physical features of a region apparently full of interest. Richard King proposed to pass through this region on his way to the north in an expedition which he planned while returning with Captain Back from the exploration of Backs River in 1835. In his book¹⁷ he publishes an Indian sketch and a description of a route which leaves Lake Athabaska at the Charlot River, descends the Tazin River to the mouth of the Taltson,

¹⁶ Samuel Hearne: *A Journey from Prince of Wales's Fort in Hudson's Bay to the Northern Ocean Undertaken by Order of the Hudson's Bay Company for the Discovery of Copper Mines, a North West Passage, etc., in the Years 1769, 1770, 1771, and 1772*, London, 1775 (reprinted as Publication VI of the Champlain Society, Toronto, 1911, which see for a reconstruction of Hearne's route on a modern map, his original being distorted, as it was based on dead reckoning and not on astronomical observations).

¹⁷ Richard King: *Narrative of a Journey to the Shores of the Arctic Ocean in 1833, 1834, and 1835, under the command of Captain Back*, 2 vols., London, 1836; reference in Vol. 2, p. 389.

and ascends that stream crossing the divide to the headwaters of the Thelon River.

This block of unexplored territory is forested on the south and west, but extends well into the Barren Grounds. It includes part of the basins and the headwaters of two large streams, the Thelon River, emptying east into Hudson Bay, and the Taltson River, draining north to Great Slave Lake and thence to the Arctic. The lower courses of both these streams have already been mapped—the Thelon by D. T. Hanbury¹⁸ and J. W. Tyrrell,¹⁹ and the Taltson by the writer²⁰—but the source of each of these streams is still unknown. When we consider the ease with which this region can be reached it is surprising that we know so little of it. Our maps show a string of lakes in dotted lines extending in an east and west direction across it along the line of travel taken by Hearne, and this is the sum of our knowledge.

This block is a part of the Laurentian Plateau and consequently a region of lakes. Its exploration, therefore, could be undertaken in canoes by following the watercourses. Indian canoe routes lead into it from two points on Lake Athabaska, one starting from Fond du Lac at the east end of the lake and the other from a point near Black Bay. The writer explored part of the latter route in 1914, crossing from Lake Athabaska to the Taltson River watershed and descending the Tazin River down to its junction with the Taltson. Instead of going eastward up the Taltson and crossing the divide to the Thelon, as King proposed and as the writer originally intended to do, he continued down stream to Great Slave Lake. The route from Fond du Lac is a difficult one, requiring many portages, but is regularly followed by the Chipewyan Indians of Fond du Lac on their way to their hunting grounds. A canoe route used by the Caribou Eaters runs eastward from Fort Smith or Fitzgerald, while the Dogribs of Great Slave Lake enter the region either by way of the Taltson River or from other points on the eastern arm of the lake. All the Indian canoe routes converge at a point on the edge of the Barren Grounds about the headwaters of the Thelon River, and the Indians from Lake Athabaska, Great Slave Lake, and the Slave River are in the habit of congregating in that locality in August every year to hunt caribou, which are said to pass there in thousands.

The rendezvous is apparently an Indian paradise for game. It is referred to by Hearne as a locality “remarkably favourable for every kind of game that the barren ground produces at the different seasons of the year.” He also says that he has “not seen or heard of any part of this

¹⁸ D. T. Hanbury: *Sport and Travel in the Northland of Canada*, London, 1904; see Chapter 4 and accompanying map in 1:3,500,000.

Idem: A Journey from Chesterfield Inlet to Great Slave Lake, 1898-9, *Geogr. Journ.*, Vol. 16, 1900, pp. 63-77, with map, 1:2,000,000.

Idem: Through the Barren Ground of North-eastern Canada to the Arctic Coast, *Geogr. Journ.*, Vol. 22, 1903, pp. 178-191, with same map, 1:3,500,000, as that which accompanies the book.

¹⁹ Work cited in footnote 10, pp. 121-122.

²⁰ Work cited in footnote 2.



FIG. 1.



FIG. 2.

FIG. 1—Hill Island Lake, until 1914 unexplored since Samuel Hearne crossed it in 1772 on his return journey to Hudson Bay after his expedition to the Coppermine River. Characteristic topography in the basin of the Taltson River, southeast of Great Slave Lake.

FIG. 2—Chipewyan Indians building birch-bark canoes on the same model and with the same kind of materials that Hearne's Indians used nearly one hundred and fifty years ago. (Photos from the Geological Survey of Canada.)

country which seems to possess half the advantages requisite to a constant residence that are ascribed to this little spot." Caribou are said to visit this part of the country in "astonishing numbers" both in spring and autumn. Ducks, geese, and swans are also plentiful at those seasons, and he refers to a species of partridge said to be as large as English fowls, though he will not vouch for the truth of this. The rivers and lakes, too, "abound in fine fish, especially trout and barble." This is no doubt the reason why the Indians still make such long and arduous journeys every year to reach it, for it means to them food and clothing in abundance with a minimum of effort in obtaining them after having reached there.

J. W. Tyrrell²¹ speaks of this oasis as extending down the valley of the Thelon River far into the Barren Grounds, though the Indians have long since abandoned the more northern portion and make their present rendezvous about the headwaters of the Thelon River, and in the region where Hearne and his horde of Chipewyan savages passed the spring of 1771 building canoes and preparing for their long march to the Coppermine River and a raid against the Eskimos. It is no doubt true that the locality where the Indians make their rendezvous abounds in game, but it is also true, as proved by the writer's own experience in 1914, that the country bordering it on the south and west is, with the exception of fish, particularly destitute of every kind of game, and the explorer must count on traveling many days from Lake Athabaska before he will be able to obtain caribou.

The purely geographical results to be obtained by the exploration of this region are particularly interesting, but it has an historical interest as well. One would no doubt find a great deal of hard work and much excitement in navigating the rivers of the region with their numerous rapids and falls, but there is also something very attractive in the Barren Grounds in summer time and the sparsely timbered country bordering it, known to the Indians as "the land of little sticks." It is not only the game that attracts the Indians to this region. To them it is not merely a land of plenty, but to those of them who live most of their lives in the forest it is a land of beauty, with a charm in the summer time not to be found anywhere else except perhaps in the high mountains about the timber line. That this fascination exists is acknowledged by everyone who has traveled in "the land of little sticks." To the Indian it is expressed in the words²² of Saltatha, Warburton Pike's faithful companion and guide in his exploration north of Great Slave Lake, when he asks the old priest who is explaining to him the beauties of heaven:

My father, you have spoken well; you have told me that heaven is very beautiful; tell me now one thing more. Is it more beautiful than the country of the musk ox in summer, when sometimes the mist blows over the lakes, and sometimes the water is blue, and the loons cry very often? That is beautiful; and if heaven is still more beautiful, my heart will be glad, and I shall be content to rest there till I am very old.

²¹ Work cited in footnote 10, pp. 121-122.

²² Warburton Pike: *The Barren Ground of Northern Canada*, London, 1892, p. 276.

These are some of the most obvious problems demanding solution in the geographical exploration of northern Canada, and the difficulties and compensations attached to them. Farther north in the Cordillera, in the Mackenzie lowland, and in the Laurentian Plateau on either side of Hudson Bay are many others equally interesting and promising as rich a reward to the adventurous explorer who has the time, energy, and opportunity to undertake their solution.